

CLAIMS

What is claimed is:

1. A composite material comprising a boehmite substrate coated with a precipitated silica, the composite having a BET specific surface area of from $1 \text{ m}^2/\text{g}$ to $50 \text{ m}^2/\text{g}$, such that the composite material has a %silica coating parameter value of about 5% to about 50%.
2. The composite material according to claim 1, wherein the composite material has a median particle size of about $1 \mu\text{m}$ to about $20 \mu\text{m}$.
3. The composite material according to claim 1, wherein the composite material has a median particle size of $1 \mu\text{m}$ to $10 \mu\text{m}$.
4. The composite material according to claim 1, wherein the composite material has an Einlehner abrasion value of about 15 mg lost/100,000 revolutions to about 30 mg lost/100,000 revolutions.
5. The composite material according to claim 1, wherein the boehmite substrate has a median diameter of $1 \mu\text{m}$ to $20 \mu\text{m}$.
6. The composite material according to claim 1, wherein the boehmite substrate has a median diameter of $1 \mu\text{m}$ to $5 \mu\text{m}$.
7. The composite material according to claim 1, wherein the boehmite substrate has an Einlehner abrasion value of about 10 mg lost/100,000 revolutions to about 65 mg lost/100,000 revolutions.
8. The composite material according to claim 1, wherein the composite has a BET surface area of $1 \text{ m}^2/\text{g}$ to $10 \text{ m}^2/\text{g}$.
9. The composite material according to claim 1, wherein the %silica coating value is between about 15% to about 40%.
10. The composite material according to claim 1, wherein the composite material has a %CPC compatibility value of greater than about 40%.
11. The composite material according to claim 1, wherein the composite material has a %CPC compatibility value of greater than about 55%.
12. The composite material according to claim 1, wherein the composite material has a %CPC compatibility value of greater than about 75%.

13. The composite material according to claim 1, wherein the composite material has a fluoride compatibility value of greater than about 40%.

14. The composite material according to claim 1, wherein the composite material has a fluoride compatibility value of greater than about 80%.

15. The composite material according to claim 1, wherein the composite material has a CPC compatibility value of greater than about 40% and a fluoride compatibility of greater than about 40%.

16. The composite material according to claim 1, wherein the composite material has a CPC compatibility value of greater than about 70% and a fluoride compatibility value of greater than about 80%.

17. A dentifrice containing a composite material comprising a boehmite substrate coated with a precipitated silica, the composite having a BET specific surface area of from $1 \text{ m}^2/\text{g}$ to $50 \text{ m}^2/\text{g}$, such that the composite material has a %silica coating parameter value of about 5% to about 50%.

18. The dentifrice according to claim 17, comprising about 10% to about 35% by weight of the composite particles.

19. The dentifrice according to claim 17, wherein the dentifrice PCR/RDA ratio is greater than 1.2.

20. The dentifrice according to claim 17, wherein the dentifrice PCR/RDA ratio is about 1.2 to about 1.5.

21. The dentifrice according to claim 17, wherein the dentifrice RDA value is greater than 60.

22. The dentifrice according to claim 17, further comprising one or more ingredients selected from the group consisting of abrasives, other thickeners, humectants, antibacterial agents, fluorides, flavors, sweeteners, and surfactants.

23. A method of forming a composite material comprising the steps of:

a) providing a boehmite slurry comprising boehmite particles; and

b) precipitating a silica by adding an acid to an aqueous solution

containing alkali metal silicate, thereby depositing silica, which has a BET specific surface area of from $1 \text{ m}^2/\text{g}$ to $50 \text{ m}^2/\text{g}$, onto the boehmite particles to form a silica-treated boehmite

composite material; the composite material having a %silica coating parameter value of about 5% to about 50%.

24. The method according to claim 23, wherein the composite material has a median particle size of $1\mu\text{m}$ to $20\mu\text{m}$

25. A method of forming a composite material that includes forming
boehmite particles by adding aluminum trihydrate to an aqueous solution and then heating
the aluminum trihydrate-containing aqueous solution, under a pressure of about 190 psi to
250 psi to form the boehmite particles, while simultaneously adding an acid to the aqueous
solution containing alkali metal silicate, thereby depositing silica, which has a BET
specific surface area of from $1\text{ m}^2/\text{g}$ to $50\text{ m}^2/\text{g}$, onto the boehmite particles to form a
silica-treated boehmite composite material; the composite material having a %silica
coating parameter value of about 5% to about 50%.